



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,672	08/05/2003	Masaaki Miyamoto	240086US0CONT	5317
22850	7590	08/13/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				BOYKIN, TERRESSA M
ART UNIT		PAPER NUMBER		
		1711		

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/633,672	MIURA, HIDEYA
	Examiner Terressa M. Boykin	Art Unit 1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 19 November 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-13 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-13 is/are rejected.
- 7) Claim(s) 2-13 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date: _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/03/11/03</u> : | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

**Priority**

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

**35 USC 112, Second Paragraph**

Claims 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 the recited "obtained by..." is unclear and indefinite because it infers that the objective *can be obtained by* other means, i.e. other than transesterification, and thus fails to meet the requirement of the statute that a claim must particularly point out and distinctly claim what applicant regards as his invention.

A suggested phrase may be "produced by" to avoid ambiguity.

**Objected Claims**

Claims 2-13 are objected to as being dependent upon a rejected base claim.

**Claim Rejections - 35 USC § 102**

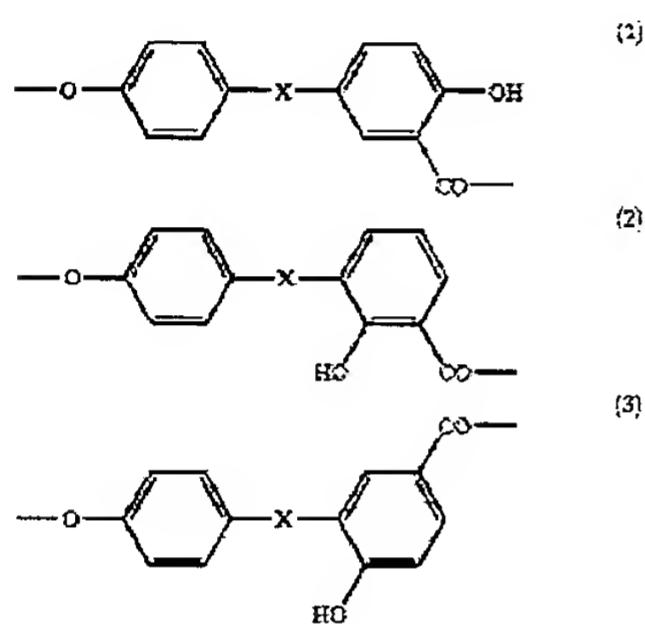
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by USP 5948876 see cols. 1-3, 5, table I, II and III and examples; or USP 6262210 see cols. 23, 24.

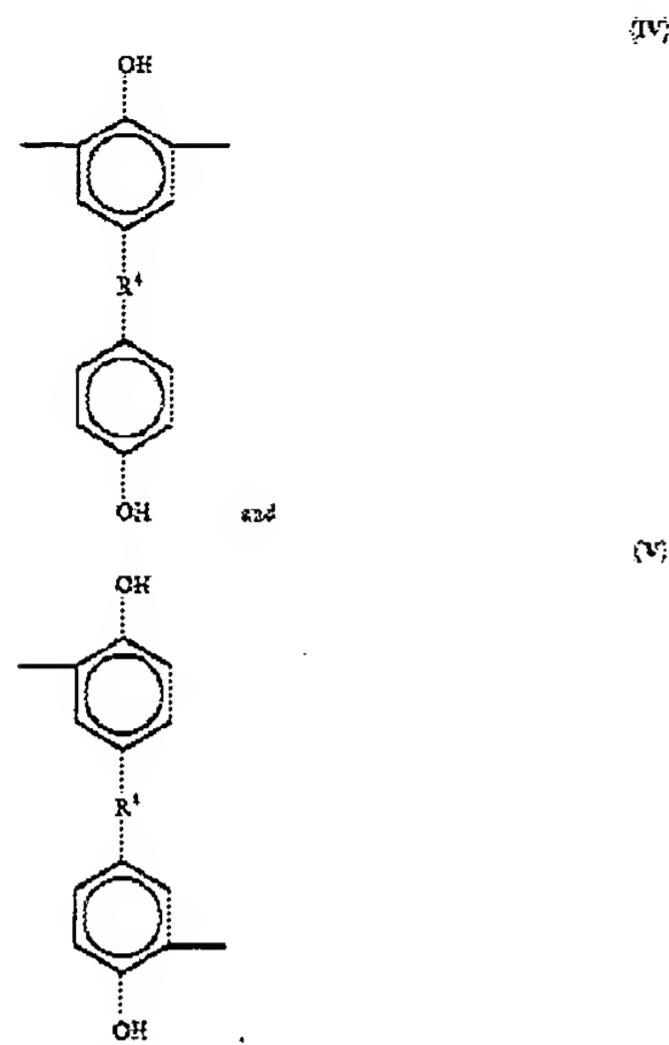
Applicants' invention is directed to a branched aromatic polycarbonate obtained by transesterification and having a viscosity average molecular weight of at least 16,000, wherein the amount of structural units of the following formula (1) contained in its main chain is within a range of from 2,000 to 50,000 wtppm, and the amounts of structural units of the following formulae (2) and (3) contained in its main chain are within a range of from 30 to 10,000 wtppm, respectively:



wherein X is a single bond, a C<sub>1-8</sub> alkylene group, a C<sub>2-8</sub> alkylidene group, a C<sub>5-15</sub> cycloalkylene group, a C<sub>5-15</sub> cycloalkylidene group or a member selected from bivalent groups represented by --O--, --S--, --CO--, --SO-- and --SO<sub>2</sub>--, 15 wherein X is a single bond, a C<sub>sub.1-8</sub> alkylene group, a C<sub>2-8</sub> alkylidene group, a C<sub>sub.5-15</sub> cycloalkylene group, a C<sub>5-15</sub> cycloalkylidene group or a member selected from bivalent groups represented by --O--, --S--, --CO--, --SO-- and --SO<sub>2</sub>--.

USP 5948876 discloses branched polycarbonates are prepared by the reaction of a linear or branched polycarbonate with a branching resin having a molecular weight up to about 3,000, typically a novolak or a bisphenol polymer. The reaction preferably takes place in the presence of a carbonate equilibration catalyst such as a quaternary bisphenolate. The method comprises contacting linear or branched aromatic polycarbonate reagent with branching resin in form of polyphenol, having a molecular weight up to 3000.

Typical bisphenol polymers comprise structural units of the formulas:



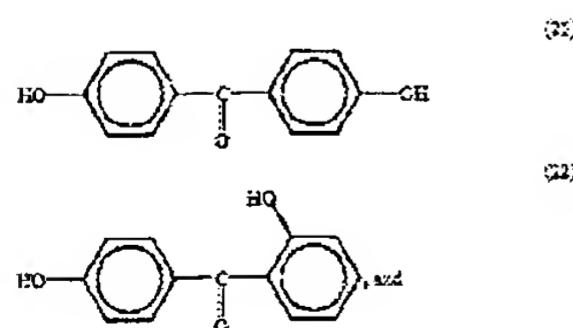
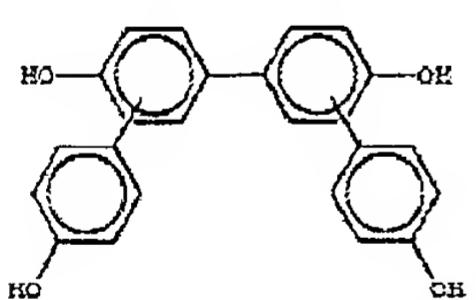
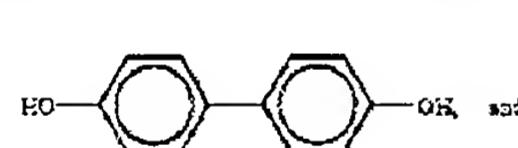
wherein Rr is an alkylene radical or oxygen.

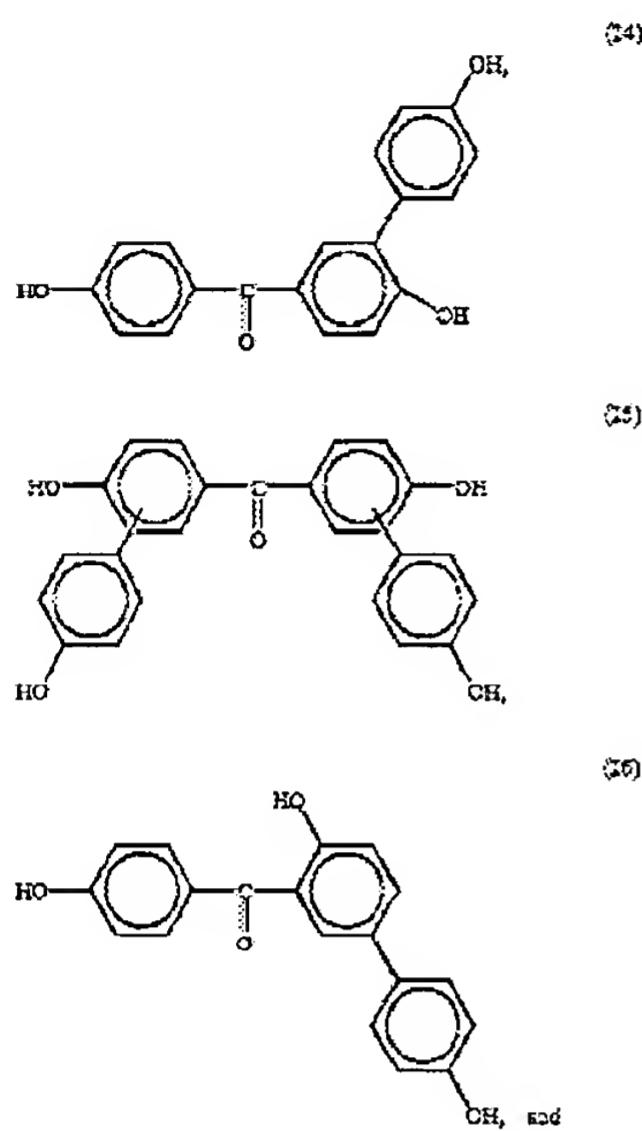
Typical of some of the dihydric phenols that are advantageously employed are bisphenols such as bis(4-hydroxyphenyl)methane, 2,2-bis(4-hydroxy-3-methylphenyl)propane, 4,4-bis(4-hydroxyphenyl)heptane, 2,2-bis(4-hydroxy-3,5-dichlorophenyl)propane and 2,2-bis(4-hydroxy-3,5-dibromophenyl)propane; dihydric phenol ethers such as 4-hydroxyphenyl ether and 3,5-dichloro-4-hydroxyphenyl ether; dihydroxybiphenyls such as 3,3'-dichloro-4,4'-dihydroxybiphenyl; dihydroxyaryl sulfones such as bis(4-hydroxyphenyl)sulfone and bis(3,5-dimethyl-4-hydroxyphenyl)sulfone; dihydroxybenzenes, such as resorcinol and hydroquinone; halo- and alkyl-substituted dihydroxybenzenes, such as 1,4-dihydroxy-2,5-dichlorobenzene and 1,4-dihydroxy-3-methylbenzene; and dihydroxydiphenyl sulfides and sulfoxides such as 4-hydroxyphenyl sulfide and bis(4-hydroxyphenyl)sulfoxide. A variety of additional dihydric phenols are also disclosed herein.

The method as disclosed by the reference allows production of blow moldable branched polycarbonate resins with desired degree of branching and molecular weight. The resins have enhanced melt strength and elasticity. The method comprises contacting linear or branched aromatic polycarbonate reagent with branching resin in form of polyphenol, having a molecular weight up to 3000. Useful equilibration catalysts, employable singly or in combination, include basic catalysts conventionally employed in transesterification reactions. Representative of such catalysts are oxides, hydrides, hydroxides and amides of alkali or alkaline earth metals, such as lithium hydroxide; basic metal oxides such as zinc oxide; salts of weak acids such as lithium stearate; organotin catalysts such as dibutyltin oxide; aluminum or boron anion containing catalysts. It is generally found convenient to initially form an alcoholic mixture of bisphenol and alkali metal hydroxide, whereupon the bisphenol dissolves as the alkali metal salt, and to add thereto an aqueous-alcoholic solution of the quaternary

salt. Another alternative is to combine the bisphenol and quaternary salt and gradually add aqueous alkali metal hydroxide solution thereto. In the water-alkanol embodiment, ambient temperatures in the range of about 20 - 30 C are generally preferred.

**USP 6262210** discloses a process for producing aromatic carbonates, which comprises transesterifying, in the presence of a metal-containing catalyst, a starting material selected from a dialkyl carbonate, an alkyl aryl carbonate and a mixture thereof with a reactant selected from an aromatic monohydroxy compound, an alkyl aryl carbonate and a mixture thereof, characterized in that: at least one type of catalyst-containing liquid is taken out, wherein the catalyst-containing liquid is selected from a portion of a high boiling point reaction mixture obtained by the above transesterification and containing the desired aromatic carbonate and the metal-containing catalyst, and a portion of a liquid catalyst fraction obtained by separating the desired aromatic carbonate from the high boiling point reaction mixture, wherein each portion contains (A) high boiling point substance having a boiling point higher than the boiling point of the produced aromatic carbonate and (B) the metal-containing catalyst; (C) a functional substance capable of reacting with at least one component selected from high boiling point substance (A) and metal-containing catalyst (B) is added to the taken-out catalyst-containing liquid; and the (B)/(C) reaction product is recycled to the reaction system, while withdrawing the (A)/(C) reaction product. By the process of the present invention, the desired aromatic carbonates having high purity can be produced stably for a prolonged period of time.





In view of the above, there appears to be no significant difference between the references and that which is claimed by applicant(s). Any differences not specifically mentioned appear to be conventional. Consequently, the claimed invention cannot be deemed as novel and accordingly is unpatentable.

### Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Terressa Boykin whose telephone number is 571 272-1069. The examiner can normally be reached on Monday through Friday from 6:30am to 3:00pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. The general information number for listings of personnel is (**571-272-1700**).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tmb

**Examiner Terressa Boykin  
Primary Examiner  
Art Unit 1711**